National Institute of Environmental Health Sciences

Climate and solar signals in property damage losses from hurricanes affecting the United States

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Abstract:

The authors show that historical property damage losses from US hurricanes contain climate signals. The methodology is based on a statistical model that combines a specification for the number of loss events with a specification for the amount of loss per event. Separate models are developed for annual and extreme losses. A Markov chain Monte Carlo procedure is used to generate posterior samples from the models. Results indicate the chance of at least one loss event increases when the springtime north–south surface pressure gradient over the North Atlantic is weaker than normal, the Atlantic ocean is warmer than normal, El Nin˜o is absent, and sunspots are few. However, given at least one loss event, the magnitude of the loss per annum is related only to ocean temperature. The 50-year return level for a loss event is largest under a scenario featuring a warm Atlantic Ocean, a weak North Atlantic surface pressure gradient, El Nin˜o, and few sunspots. The work provides a framework for anticipating hurricane losses on seasonal and multi-year time scales.

Source: Ask your librarian to help locate this item.

Resource Description

Communication: ☑

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience: ☑

audience to whom the resource is directed

Researcher

Early Warning System: ☑

resource focus on systems used to warn populations of high temperatures, extreme weather, or other elements of climate change to prevent harm to health

A focus of content

Exposure : ☑

weather or climate related pathway by which climate change affects health

Extreme Weather Event, Human Conflict/Displacement

Extreme Weather Event: Hurricanes/Cyclones

Geographic Feature:

resource focuses on specific type of geography

Ocean/Coastal

Geographic Location:

resource focuses on specific location

United States

Health Impact:

specification of health effect or disease related to climate change exposure

Injury

Intervention:

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology:

type of model used or methodology development is a focus of resource

Cost/Economic

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Short-Term (

Vulnerability/Impact Assessment:

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content